

WHAT IS CLAIMED IS:

1. A sensor for the transcutaneous measurement of vascular access blood flow comprising at least one photoemitter and at least one photodetector, the total number of photoemitters and photodetectors being at least three, the photoemitters and the photodetectors being collinear and alternatingly arranged.
2. A sensor for the transcutaneous measurement of vascular access blood flow comprising:
  - a substrate having an axis and an access placement line perpendicular to the axis;
  - an inboard emitter and an inboard detector positioned on the substrate on either side of and spaced the same distance  $\delta$  from the access placement line.
3. The sensor of claim 2, further comprising at least one of an outboard emitter and an outboard detector spaced a distance  $\delta$  from the inboard detector and the inboard emitter, respectively.
4. The sensor of claim 3, wherein all of the emitters and detectors are collinear and are alternatingly arranged.

5. The sensor of claim 4, wherein the inboard emitter is the only emitter and wherein there is an inboard detector and an outboard detector on either side of the inboard emitter.

6. The sensor of claim 4, wherein the inboard detector is the only detector and wherein there is an inboard emitter and an outboard emitter on either side of the inboard detector.

7. The sensor of claim 4, wherein there is at least one outboard emitter and at least one outboard detector.